



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/098,688	03/15/2002	Shunpei Yamazaki	SEL 308	5173

7590 12/13/2005

COOK, ALEX, MCFARRON, MANZO,
CUMMINGS & MEHLER, LTD.
Suite 2850
200 West Adams St.
Chicago, IL 60606

EXAMINER

CHEN, BRET P

ART UNIT	PAPER NUMBER
----------	--------------

1762

DATE MAILED: 12/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/098,688

Applicant(s)

YAMAZAKI ET AL.

Examiner

B. Chen

Art Unit

1762

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 46-110 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 58-73, 77-80, 84-87, 100-103 and 107-110 is/are allowed.
- 6) ☒ Claim(s) 46-57, 74-76, 81-83, 88-99 and 104-106 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claims 46-110 are pending in this application.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 50-57, 75-76, 82-83, 88-96, 98-99, 105-106 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In claim 50, the limitation of “the heat generating means is covered with said heat absorber” is deemed new matter as there appears to be no support for such a limitation in the original specification. It is noted that the absorber is discussed on p.5 lines 4-8 and p.24 lines 2-11 but not the newly added limitation. The same issue is applied to claims 51-53, 75, 82, 89, 95, 98, 105 as well as claims 54-57, 76, 83, 90, 96, 99, 106.

In claim 88, the limitation of the gas flowing “through pores of an orifice plate over the substrate” is deemed new matter as there appears to be no support for such a limitation in the original specification. It is noted that there is mention of orifice plates 1106 and 1107 on pp.14-15 but no support for the claimed limitations. The same issue applies to 89-94.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 46-57, 74-76, 81-83, 88-90, 95-99, 104-106 are rejected under 35 U.S.C.

103(a) as being unpatentable over Hemsath et al. (5,997,286). Hemsath discloses a thermal treating process with a recirculation plenum (col.5 lines 4-13) in which the plenum 30 introduces a stream at the upstream end 31 and is in fluid communication with a downstream end 26 (col.7 line 64 – col.8 line 8). The fluid is recirculated (col.8 lines 8-36). A heater can be utilized (lines 17-21), as well as a heat exchanger and coolers (lines 21-23). The fluid can be an oxidizing gas or a non-oxidizing gas and a second chamber can be utilized (col.12 lines 21-29). A semiconductor film is taught in col.2 lines 23-57 as well as a orifice plate (col.9 lines 17-54). However, the reference remains silent on the location of the heating means.

It is noted that the reference utilizes the heating means to heat the fluid and the substrate as noted above. One skilled in the art would realize that the location of the heating means is irrelevant as long as it heats. It would have been obvious to one skilled in the art to place the heating means in the upstream side of the chamber with the expectation of obtaining equivalent results and in the absence of a showing of unexpected results.

The limitations of claims 46-57, 74-67, 88-90 have been addressed above.

In claims 81-83, the applicant requires a gas flow perpendicular to the substrate. The reference clearly teaches of flowing a gas over the substrate. To flow the gas perpendicular would have been obvious with the expectation of obtaining similar results.

Claims 46-57, 74-76, 81-83, 88-90, 95-99, 104-106 are rejected under 35 U.S.C.

103(a) as being unpatentable over Ushikawa (5,378,283). Ushikawa discloses a method of using a heat treating device which can maintain ambient atmosphere of inert gas in the load lock chamber at high purity with a minimum feed amount of the inert gas into the load lock chamber, and which is useful to suppress generation of particles and prevent chemical contamination (col.3 lines 29-35). Gases are disposed on an upstream side 5 and exhausted on a downstream side 4 (col.1 lines 30-35) and subsequently recirculated (col.3 lines 50-68). The gas is heated by heater 2 and can be oxygen or nitrogen (col.2 lines 1-6). However, the reference fails to specifically teach heating a substrate.

It is noted that the reference does teach a heating temperature of 500-1000°C (col.7 lines 36-39). One skilled in the art would realize that the temperature of the substrate would be heated by having this heating temperature. Hence, it would have been obvious to heat the substrate given Ushikawa's teaching of a heated atmosphere with the expectation of maintaining better temperature control of the substrate.

The limitations of 47-57, 74-76, 81-83, 88-90, 95-99, 104-106 have been addressed above.

Allowable Subject Matter

Claims 58-73, 77-80, 84-87, 100-103, 107-110 are allowed. It should be noted that the allowability of claims 91-94 have been withdrawn due to the new matter rejection.

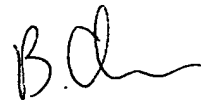
Art Unit: 1762

Any inquiry concerning this communication or earlier communications from the examiner should be directed to B. Chen whose telephone number is (571) 272-1417. The examiner can normally be reached on 7:30am - 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Bc
3/20/05



BRET CHEN
PRIMARY EXAMINER